HIGH SPEED ACTIVE OPTICAL SYSTEM TO CHANGE AN IMAGE WAVELENGTH

ABSTRACT

The present application is directed to high speed optical system. In one embodiment, the optical system includes a photodiode which is sensitive to a wavelength of light, a first source of photons at a first wavelength to which the photodiode is sensitive incident on the photodiode, a second source of photons at a second wavelength to which the photodiode is insensitive incident on the photodiode, an electric field across the photodiode in excess of the breakdown voltage thereof and configured to result in an avalanching of electrons in the photodiode when the photons from the first source strike the photodiode, and a capture device in optical communication with and configured to capture light reflected from the photodiode. The avalanche of electrons within the photodiode results in a photorefractive response which changes the index of refraction in the photodiode. Light reflected from the photodiode is modulated by the photorefractive response and is subsequently captured by the capture device.